

# QUINT-PS/1AC/48DC/20 - Power supply



2866695

<https://www.phoenixcontact.com/us/products/2866695>

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Primary-switched power supply unit QUINT POWER, Screw connection, SFB Technology (Selective Fuse Breaking), input: 1-phase, output: 48 V DC / 20 A, adjustable from 30 V DC ... 56 V DC, 90 V DC ... 300 V DC. Please use the following item for new projects: 2904612 QUINT4-PS/1AC/48DC/20

## Product description

QUINT POWER power supplies with maximum functionality

QUINT POWER circuit breakers magnetically and therefore quickly trip at six times the nominal current, for selective and therefore cost-effective system protection. The high level of system availability is additionally ensured, thanks to preventive function monitoring, as it reports critical operating states before errors occur.

Reliable starting of heavy loads takes place via the static power reserve POWER BOOST. Thanks to the adjustable voltage, all ranges between 5 V DC ... 56 V DC are covered.

## Your advantages

- Reliable starting of difficult loads
- Quick tripping of standard circuit breakers
- Preventive function monitoring

## Commercial data

Item number	2866695
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CM11
Product key	CMPQ14
GTIN	4046356547727
Weight per piece (including packing)	3,819 g
Weight per piece (excluding packing)	3,300 g
Customs tariff number	85044095
Country of origin	TH

## Technical data

### Input data

#### AC operation

Nominal input voltage range	100 V AC ... 240 V AC
	120 V DC ... 300 V DC (UL 508: $\leq 250$ V DC)
Input voltage range	85 V AC ... 264 V AC
	90 V DC ... 300 V DC (UL 508: $\leq 250$ V DC)
Input voltage range AC	85 V AC ... 264 V AC
Input voltage range DC	90 V DC ... 300 V DC (UL 508: $\leq 250$ V DC)
Electric strength, max.	300 V AC
Voltage type of supply voltage	AC
Inrush current	< 15 A (typical)
Inrush current integral ( $I^2t$ )	< 1.6 A <sup>2</sup> s
AC frequency range	45 Hz ... 65 Hz
Frequency range DC	0 Hz
Mains buffering time	typ. 20 ms (120 V AC)
	typ. 22 ms (230 V AC)
Current consumption	8.7 A (120 V AC)
	4.5 A (230 V AC)
	9.4 A (110 V DC)
	4.6 A (220 V DC)
Nominal power consumption	1046 VA
Protective circuit	Transient surge protection; Varistor
Typical response time	< 0.65 s
Input fuse	20 A (fast blow, internal)
Permissible backup fuse	B16 B25 AC:
Permissible DC backup fuse	DC: Connect a suitable fuse upstream
Recommended breaker for input protection	6 A ... 16 A (AC: Characteristics B, C, D, K)
Discharge current to PE	< 3.5 mA

#### DC operation

Voltage type of supply voltage	DC
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### Output data

Efficiency	> 93 % (for 230 V AC and nominal values)
Nominal output voltage	48 V DC $\pm 1$ %
Setting range of the output voltage ( $U_{Set}$ )	30 V DC ... 56 V DC (> 48 V DC, constant capacity restricted)
Nominal output current ( $I_N$ )	20 A (-25 °C ... 60 °C, $U_{OUT} = 48$ V DC)
POWER BOOST ( $I_{Boost}$ )	22.5 A (-25 °C ... 40 °C permanent, $U_{OUT} = 48$ V DC )
Selective Fuse Breaking ( $I_{SFB}$ )	100 A (12 ms)
Magnetic circuit breaker tripping	B2 / B4 / B6 / B10 / C2 / C4 / C6
Derating	60 °C ... 70 °C (2.5 %/K)

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Feedback voltage resistance	max. 60 V DC
Protection against overvoltage at the output (OVP)	< 60 V DC
Active current limitation	Approx. $I_{BOOST} = 22.5$ A (for short-circuit)
Control deviation	< 1 % (change in load, static 10 % ... 90 %)
	< 3 % (change in load, dynamic 10 % ... 90 %)
	< 0.1 % (change in input voltage $\pm 10$ %)
Residual ripple	< 50 mV <sub>PP</sub> (with nominal values)
Output power	960 W
Maximum no-load power dissipation	12 W
Power loss nominal load max.	74 W
Rise time	< 0.05 s ( $U_{OUT}$ (10 % ... 90 %))
Connection in parallel	yes, for redundancy and increased capacity
Connection in series	yes

Signal: DC OK active

Output description	$U_{OUT} > 0.9 \times U_N$ : High signal
Switching voltage range	18 V DC ... 24 V DC
Maximum inrush current	$\leq 20$ mA (short-circuit-proof)
Continuous load current	$\leq 20$ mA

Signal: DC OK floating

Output description	Relay contact, $U_{OUT} > 0.9 \times U_N$ : Contact closed
Maximum switching voltage	30 V AC/DC
	24 V DC
Maximum inrush current	0.5 A
	1 A
Continuous load current	$\leq 1$ A

Signal: POWER BOOST, active

Output description	$I_{OUT} < I_N$ : High signal
Switching voltage range	18 V DC ... 24 V DC
Output voltage	+ 48 V DC
Maximum inrush current	$\leq 20$ mA (short-circuit-proof)
Continuous load current	$\leq 20$ mA

## Connection data

Input

Connection method	Screw connection
Conductor cross-section, rigid min.	0.2 mm <sup>2</sup>
Conductor cross-section, rigid max.	6 mm <sup>2</sup>
Conductor cross-section flexible min.	0.2 mm <sup>2</sup>
Conductor cross-section flexible max.	4 mm <sup>2</sup>
Conductor cross-section AWG min.	14
Conductor cross-section AWG max.	10
Stripping length	7 mm

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Screw thread	M3
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

## Output

Connection method	Screw connection
Conductor cross-section, rigid min.	0.5 mm <sup>2</sup>
Conductor cross-section, rigid max.	16 mm <sup>2</sup>
Conductor cross-section flexible min.	0.5 mm <sup>2</sup>
Conductor cross-section flexible max.	16 mm <sup>2</sup>
Conductor cross-section AWG min.	8
Conductor cross-section AWG max.	6
Stripping length	10 mm
Screw thread	M3
Tightening torque, min	1.2 Nm
Tightening torque max	1.5 Nm

## Signal

Connection method	Screw connection
Conductor cross-section, rigid min.	0.2 mm <sup>2</sup>
Conductor cross-section, rigid max.	6 mm <sup>2</sup>
Conductor cross-section flexible min.	0.2 mm <sup>2</sup>
Conductor cross-section flexible max.	4 mm <sup>2</sup>
Conductor cross-section AWG min.	24
Conductor cross-section AWG max.	10
Screw thread	M3
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

## Signaling

Types of signaling	LED
	Active switching output
	Relay contact

### Signal output: DC OK active

Status display	$U_{OUT} > 0.9 \times U_N$ : "DC OK" LED green
Note on status display	$U_{OUT} < 0.9 \times U_N$ : Flashing "DC OK" LED
	$I_{OUT} < I_N$ : LED ON

### Signal output: DC OK floating

Status display	$U_{OUT} > 0.9 \times U_N$ : "DC OK" LED green
Note on status display	$U_{OUT} < 0.9 \times U_N$ : Flashing "DC OK" LED

### Signal output: POWER BOOST, active

Status display	$I_{OUT} > I_N$ : LED "BOOST" yellow
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## Electrical properties

Number of phases	1
Insulation voltage input/output	4 kV AC (type test)
	2 kV AC (routine test)
Insulation voltage output / PE	500 V DC (routine test)
Insulation voltage input / PE	3.5 kV AC (type test)
	2 kV AC (routine test)

## Product properties

Product type	Power supply
Product family	QUINT POWER
MTBF (IEC 61709, SN 29500)	> 880000 h (25 °C)
	> 523000 h (40 °C)

## Insulation characteristics

Protection class	I
Overvoltage category (EN 62477-1)	III
Degree of pollution	2

## Dimensions

Width	180 mm
Height	130 mm
Depth	125 mm

## Installation dimensions

Installation distance right/left	5 mm / 5 mm
Installation distance top/bottom	50 mm / 50 mm

## Alternative assembly

Width	122 mm
Height	130 mm
Depth	183 mm

## Mounting

Assembly note	alignable: $P_N \geq 50\%$ , 5 mm horizontally, 15 mm next to active components, 50 mm vertically alignable: $P_N < 50\%$ , 0 mm horizontally, 40 mm vertically top, 20 mm vertically bottom
Mounting position	horizontal DIN rail NS 35, EN 60715
With protective coating	no

## Material specifications

Housing material	Metal
Type of housing	Steel sheet, zinc-plated

## Environmental and real-life conditions

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## Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 70 °C (> 60 °C Derating: 2,5 %/K)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Ambient temperature (start-up type tested)	-40 °C
Maximum altitude	6000 m
Climatic class	3K3 (in acc. with EN 60721)
Max. permissible relative humidity (operation)	≤ 95 % (at 25 °C, non-condensing)
Shock	18 ms, 30g, in each space direction (according to IEC 60068-2-27)
Vibration (operation)	< 15 Hz, amplitude ±2.5 mm (according to IEC 60068-2-6) 15 Hz ... 150 Hz, 2.3g, 90 min.
Temp code	T4 (-25 ... +60 °C)

## Standards and regulations

Rail applications	EN 50121-4 EN 50121-3-2
Standard – Limitation of mains harmonic currents	EN 61000-3-2
Standard - Electrical safety	IEC 61010-2-201 (SELV)
Standard - Equipment safety	BG (design tested)
Standard – Protection against shock currents, basic requirements for protective separation in electrical equipment	EN 50178
Standard – Safety extra-low voltage	IEC 61010-1 (SELV) IEC 61010-2-201 (PELV)
Standard - Safe isolation	IEC 61010-2-201
Standard - safety for equipment for measurement, control, and laboratory use	IEC 61010-1

## Approvals

CSA	CAN/CSA-C22.2 No. 60950-1-07 CSA-C22.2 No. 107.1-01
Shipbuilding approval	DNV GL (EMC A)
SIQ	BG (type approved)
UL approvals	UL Listed UL 508 UL/C-UL Recognized UL 60950-1 UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D T4 (Hazardous Location)

## EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
EMC requirements for noise emission	EN 61000-6-3 EN 61000-6-4
EMC requirements for noise immunity	EN 61000-6-1 EN 61000-6-2

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## Noise emission

Standards/regulations	EN 55011 (EN 55022)
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## Electrostatic discharge

Standards/regulations	EN 61000-4-2
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## Electrostatic discharge

Contact discharge	8 kV (Test Level 4)
Discharge in air	15 kV (Test Level 4)
Comments	Criterion A

## Electromagnetic HF field

Standards/regulations	EN 61000-4-3
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## Electromagnetic HF field

Frequency range	80 MHz ... 1 GHz
Test field strength	20 V/m (Test Level 3)
Frequency range	1 GHz ... 2 GHz
Test field strength	10 V/m (Test Level 3)
Frequency range	2 GHz ... 3 GHz
Test field strength	10 V/m (Test Level 3)
Comments	Criterion A

## Fast transients (burst)

Standards/regulations	EN 61000-4-4
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## Fast transients (burst)

Input	4 kV (Test Level 4 - asymmetrical)
Output	2 kV (Test Level 3 - asymmetrical)
Signal	2 kV (Test Level 4 - asymmetrical)
Comments	Criterion A

## Surge voltage load (surge)

Standards/regulations	EN 61000-4-5
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## Surge voltage load (surge)

Input	2 kV (Test Level 3 - symmetrical)
	4 kV (Test Level 4 - asymmetrical)
Output	1 kV (Test Level 2 - symmetrical)
	2 kV (Test Level 3 - asymmetrical)
Signal	1 kV (Test Level 2 - asymmetrical)
Comments	Criterion A

## Conducted interference

Standards/regulations	EN 61000-4-6
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## Conducted interference

Input/output/signal	asymmetrical
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Frequency range	0.15 MHz ... 80 MHz
Comments	Criterion A
Voltage	10 V (Test Level 3)

## Emitted interference

Standards/regulations	EN 61000-6-3
Radio interference voltage in acc. with EN 55011	EN 55011 (EN 55022) Class B, area of application: Industry and residential
Emitted radio interference in acc. with EN 55011	EN 55011 (EN 55022) Class B, area of application: Industry and residential

## Criteria

Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.

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## Drawings



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2866695>



**UL Recognized**  
Approval ID: E211944



**IECEE CB Scheme**  
Approval ID: SI-2748



**EAC**  
Approval ID: RU S-DE.BL08.W.00764



**EAC**  
Approval ID: RU S-DE.BL08.W.00764



**UL Listed**  
Approval ID: E123528

**DNV**

Approval ID: TAA000030X



**cCSAus**  
Approval ID: 2448618

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## Classifications

### ECLASS

ECLASS-13.0	27040701
ECLASS-15.0	27040701

### ETIM

ETIM 10.0	EC002540
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### UNSPSC

UNSPSC 21.0	39121000
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I

### China RoHS

Environment friendly use period (EFUP)	EFUP-25
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

### EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
	Lead(CAS: 7439-92-1)
SCIP	a162e15e-b607-4939-8cc2-48f5cdf67fb

### EF3.1 Climate Change

CO2e kg	110.042 kg CO2e
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